

BOLT KEEPER TOILET FLANGE

BACKGROUND OF THE INVENTION

This invention relates to toilet-bowl bolt flanges having bolt keepers to set, retain and lock toilet-bowl bolts when being installed or repaired.

Generally, toilet bowls are bolted to cement or wooden floors with toilet bolts that point up from a toroidal toilet-bolt flange that is bolted down to the floor with floor bolts that point down at separate circumferential portions of the toilet-bowl flange.

Positioning the toilet bolts that point up, preventing them from falling through floor openings and preventing them from rotating for opposition to rotation of fastener nuts screwed onto them are problems that have not been solved previously for original installation and more yet for repair of old toilet bowls. Overcoming these problems are objectives of this invention.

Examples of most-closely related known but different devices are described in the following patent documents:

	<u>U.S. Patent No.</u>	<u>Inventor</u>	<u>Issue Date</u>
	5,890,239	Hite	04/06/1999
	3,921,229	Yavitch	11/25/1975
	3,409,918	Gaddy	11/12/1968
20	919,935	Oidtmann	04/27/1909
	3,579,670	Frank	05/25/1971
	879,176	Jackson	02/18/1908
	812,543	Buchanan, Jr.	02/13/1906
25	1,005,751	Schweitzer	10/10/1911
	1,061,632	Podolsky	05/13/1913
	4,207,630	Bressler	06/17/1980

SUMMARY OF THE INVENTION

Objects of patentable novelty and utility taught by this invention are to provide a bolt-keeper toilet flange which:

- 5 can be used in original toilet installation to prevent toilet bolts from slipping out of place or falling through floor openings;
- can be used as a supplemental flange on top of current flanges for toilet repairs; and
- can be positioned circumferentially on top of present flanges.

This invention accomplishes these objectives with a bolt-keeper toilet flange having a predeterminedly arcuate plate with one or more bolt-head brackets for holding a head of a toilet bolt in order to position the toilet bolt upright in a predetermined place for attachment of a toilet bowl. On opposite sides of the bolt-head bracket are arcuate floor-bolt apertures through which floor bolts can be inserted with heads of the floor bolts being retained by the floor-bolt apertures for bolting the arcuate panel to a floor selectively about a toilet drain aperture. Optionally, for a repair embodiment, the arcuate plate can extend predetermined degrees for bridging between sections of an existing toilet-bowl ring. For original installation, the arcuate plate can be two halves or one complete toroidal flange.

The above and other objects, features and advantages of the present invention should become even more readily apparent to those skilled in the art upon a reading of the following detailed description in conjunction with the drawings wherein there is shown and described illustrative embodiments of the invention.

BRIEF DESCRIPTION OF DRAWINGS

This invention is described by appended claims in relation to description of a preferred embodiment with reference to the following drawings which are explained briefly as follows:

5 **FIG. 1** is a top view of an arcuate-plate embodiment having a supplemental bolt-head bracket;

FIG. 2 is a partially cutaway front view of the **FIG. 1** illustration;

FIG. 3 is a bottom view of the **FIG. 1** illustration;

10 **FIG. 4** is a front view of the **FIG. 1** illustration with floor bolts and a toilet bolt in place for repair use to attach a toilet bowl to a floor;

FIG. 5 is a top view of an arcuate-plate embodiment having an integral bolt-head bracket;

FIG. 6 is a partially cutaway front view of the **FIG. 5** illustration;

FIG. 7 is a bottom view of the **FIG. 5** illustration;

15 **FIG. 8** is a front view of the **FIG. 5** illustration with floor bolts and a toilet bolt in place for repair use to attach a toilet bowl to a floor;

FIG. 9 is a top view of a connector plate having a supplemental bolt-head bracket with an entry at an outside edge and a width of approximately three-quarters of an inch with circular floor-bolt apertures;

20 **FIG. 10** is a top view of a connector plate having a supplemental bolt-head bracket with an entry at an inside edge and a width of approximately one inch with circular floor-bolt apertures;

5 **FIG. 11** is a top view of a connector plate having a supplemental bolt-head bracket with an entry at an outside edge and a width of approximately one inch with arcuate floor-bolt apertures;

10 **FIG. 12** is a top view of a connector plate having an integral bolt-head bracket with an entry at an outside edge and a width of approximately one inch with arcuate floor-bolt apertures;

15 **FIG. 13** is a top view of a supplemental circumferential plate having a first supplemental bolt-head bracket with an entry at an inside edge, a second supplemental bolt-head bracket with an entry at an outside edge and a width of approximately one-and-one-half inches with circular floor-bolt apertures; and

20 **FIG. 14** is a top view of a base circumferential plate having a first integral bolt-head bracket with an entry at an inside edge, a second integral bolt-head bracket with an entry at an outside edge and a width of approximately one-and-one-half inches with circular floor-bolt apertures.

25 DESCRIPTION OF PREFERRED EMBODIMENT

30 Listed numerically below with reference to the drawings are terms used to describe features of this invention. These terms and numbers assigned to them designate the same features throughout this description:

20	1. Arcuate plate 2. Supplemental bolt-head bracket 3. Bracket walls 4. Bolt-head side 5. First arcuate end 6. Second arcuate end 7. Arcuate floor-bolt apertures 8. Floor bolts 9. Integral bolt-head bracket 10. Bolt-shank opening 11. Connector plate	12. Supplemental circumferential plate 13. Base circumferential plate 14. Toilet-bolt shank 15. Toilet-bolt head 16. Toilet-bolt nut 17. Bracket entry 18. Inside edge 19. Outside edge 20. End wall 21. Floor-bolt apertures
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Referring to **FIGS. 1-4**, a bolt-keeper toilet flange has a toilet-fastener plate that includes an arcuate plate **1** having a bolt-head bracket that includes a supplemental bolt-head bracket **2** having bracket walls **3** that are supplemental to and superimposed onto material of construction of the toilet-fastener plate and project upwardly from a bolt-head side **4** of the toilet-fastener plate that includes the arcuate plate **1**. The arcuate plate **1** has a predetermined arcuate length intermediate a first arcuate end **5** and a second arcuate end **6**. The supplemental bolt-head bracket **2** is approximately centered intermediate the first arcuate end **5** and the second arcuate end **6**. Intermediate the first arcuate end **5** and the supplemental bolt-head bracket **2** and intermediate the second arcuate end **6** and the supplemental bolt-head bracket **2** are arcuate floor-bolt apertures **7** that preferably have an arcuate length of at least three diameter lengths of floor bolts **8**.

The bolt-head bracket can include an integral bolt-head bracket **9** that is shown in **FIGS. 4-8, 12 and 14** in contrast to the supplemental bolt-head bracket **2** which is shown in **FIGS. 1-3, 9-11 and 13**. The bolt-head bracket, whether the supplemental bolt-head bracket **2** or the integral bolt-head bracket **9**, has a bolt-shank opening **10** on the bolt-head side **4** of the toilet-fastener plate. This is the same for the arcuate plate **1** that is shown in **FIGS. 1-8**, a connector plate **11** that is shown in **FIGS. 9-12**, a supplemental circumferential plate **12** that is shown in **FIG. 13**, and a base circumferential plate **13** that is shown in **FIG. 14**. The supplemental bolt-head bracket **2** is superimposed on thin supplemental toilet-fastener plates in contrast to the integral bolt-head bracket **9** that preferably is integrated into a wall thickness of the toilet-fastener plates.

The bolt-shank opening 10 is for holding a toilet-bolt shank 14 uprightly from a toilet-bolt head 15 in the bolt-head bracket of either the supplemental bolt-head bracket 2 or the integral bolt-head bracket 9. This prevents the toilet-bolt shank 14 from rotating and holds it in place where it can be accessed when a toilet bowl that 5 is not shown is placed on it and toilet-bolt nuts 16 are screwed onto the toilet-bolt shanks 14.

The bolt-head bracket, whether the supplemental bolt-head bracket 2 or the integral bolt-head bracket 9, includes a bracket entry 17 that is articulated to receive the toilet-bolt head 15 and the toilet-bolt shank 14 radially from a predetermined entry edge of the fastener plate. The entry edge can be an inside edge 18 or an outside edge 19. FIGS. 13-14 depict bracket entries 17 on both inside edges 18 and outside edges 19 for illustration purposes only. Most toilet-fastener plates will have the bracket entries 17 on a same predetermined side.

The bolt-head bracket also includes an end wall 20 in the bolt-shank opening 10 for preventing the toilet-bolt shank 14 and the toilet-bolt head 15 from passing through the bolt-head bracket.

The supplemental circumferential plate 12 of FIG. 13 is intended primarily as a thin, supplemental plate to be used for repairs to hold-toilet bolt shanks 14 and floor bolts 8 in place in relationship to existing but damaged toilet flanges. The base 20 circumferential plate 13 of FIG. 14 is intended for original installation. Either can have inside and outside peripheries with diameters for particular toilet hardware. Widths of one-to-one-and-one-half inches are suitable for most applications. Either can have floor-bolt apertures 21 that include two series of predetermined pluralities of the floor-bolt apertures 21 that are oppositely disposed circumferentially at

predetermined radii from an axis of the base circumferential plate 13 or the supplemental circumferential plate 12.

A new and useful bolt-keeper toilet flange having been described, all such foreseeable modifications, adaptations, substitutions of equivalents, mathematical 5 possibilities of combinations of parts, pluralities of parts, applications and forms thereof as described by the following claims and not precluded by prior art are included in this invention.